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VALUE VERSUS INVESTMENT AS A BASIS FOR UTILITY SERVICE RATES¹

BY WM. G. RAYMOND²

The commonest method heretofore adopted by courts in valuing utility properties has been the so-called cost-of-reproduction-less-depreciation-plus-going-value method. For the purpose of this discussion it is sufficient to speak of "cost of reproduction." When changes in prices yielded a wavy line up and down above and below a fairly horizontal average line parallel to the axis of years, in a diagram, it made comparatively little difference whether original cost to date or reproduction cost was used as the basis of value.

Properties usually being built piecemeal, the actual investment would be made partly in times of high prices and partly in times of low prices, so that the original cost would tend to be a better basis of value than a reproduction cost, for it would reflect the effect of prices averaged over a period of years. A reproduction cost estimate made during a period of low prices would deprive the owner of somewhat of his investment, whereas if the estimate were made during a period of high prices something would be added to the investment. Rates for service, being based on either one, would be likely soon to become inequitable because of the certain change in costs either up or down that would follow soon after the valuation.

Valuations made every few years would be likely to be made sometimes during high prices and sometimes during low prices, and so the general average might not be far from fair if made on a reproduction basis. But it would seem to be plain that during a considerable number of years preceding the recent war, original cost to date, actual or estimated actual reasonable investment, was likely to give a fairer basis for determining value than reproduction cost.

¹Read before the Iowa Section, November 6, 1920. In this paper "investment" means the actual or estimated reasonable cost of creating a return-earning utility property; it is expressed in money. Discussion of the paper is invited and should be sent to the Editor.

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Now the situation is changed. Prices are decidedly higher than before the war, and what seemed to be fair then may be questioned now. The reproduction costs of certain utility properties are now nearly or quite twice the original investments made prior to the war. What shall be done now? Is reproduction cost the fairest basis of value now? Or is original actual or estimated actual reasonable investment still the better basis?

It is asserted with some confidence that the real investment, as nearly as that can be obtained, is still the fairest and best basis for rate making, and that such allowance as must be made for the changed conditions should be in the rate of return.

These properties last for many years, during which there may be great fluctuations in costs of construction, and the one stable thing is the investment. It would seem to be the logical thing on which to base rates. But the return rate should vary with considerable or long time variations in costs and the worth of money. An attempt will be made to point out some difficulties and inequities that result from varying value with varying cost prices. Depreciation accounting will be used for this purpose. Assumptions made will be violent for simplicity of computation. Effects of the application of principles will be emphasized by this procedure.

Let an investment of \$100,000 create a property. Let the depreciation allowance that should be included in annual operating expense and credited to depreciation reserve be based on the cost (or investment) and be such as to provide a sum equivalent to the cost of the physical property when it is retired, varying sums for varying items. Let a particular item costing \$100 be considered to be the only depreciating item. Let it be assumed that within the first year, before an annual charge for depreciation is made, in connection with a rate case a court, finding costs doubled as they are right now, places a value of \$200,000 on the physical property, increasing the value of the particular item to \$200. A few years later the \$100 item goes out of service while prices are still high. It will require \$200 to replace the retired item with another like it.

If the item has lasted its estimated life, there will be, in accordance with the assumptions made, \$100 in the depreciation reserve either in property or cash, to reimburse the owner for his outlay now used up in the service of the public. But the court has raised the value of this item to \$200. If this \$200 is charged off, the owner loses \$100 of the value the court has given him, and to bring the value back to

\$200,000 he must find \$100 of new capital to add to the \$100 in the reserve, with which to purchase the replacing item. When the item is in place the value of the property stands as before at \$200,000, but the owner has had to invest \$100 more than his previous investment to maintain the value of that investment as fixed by the court.

On the other hand, as an accounting matter, let the process be as follows: After the decision of the court the property value is written up 100 per cent to \$200,000. When the item considered is retired, \$100 instead of \$200 is written off, leaving \$199,900 in the property. Then the new item is added and \$200 is written on. The result is a property value of \$200,100 or the value given by the court plus the extra \$100 of new capital invested by the owner. The owner is protected in his value as fixed by the court and his additional investment. And yet we have exactly the same property that was recently valued at \$200,000, now carried at \$200,100.

Something seems to be wrong with both of the foregoing results and there are those who say, "Why, of course, the depreciation allowance should be based on the reproduction cost, the cost of the replacing item, not that of the original item." Let this be assumed to be true, and for simplicity let it be assumed that the higher cost of the replacing item is known in advance so that at the time the old item goes out of service the cost of the new item has been accumulated in the reserve. The situation will then be as follows: When the court raises the value to \$200,000 the property will be written up 100 per cent. When the item under consideration goes out of service, its new value of \$200 is written off, and the cost of the new item \$200 is written on, the whole \$200 being found in the reserve. No new capital is needed to maintain the \$200,000 value of the property. This seems to be just as it should be. But what has happened and what is going to happen from now on? The original item cost the owner \$100; the depreciation reserve collected from the public amounts to \$200, sufficient to purchase the new item; so far as this item is concerned, then, the public will be called upon not only to pay interest or return on the appreciated value fixed by the court, but also to give the owner the actual cash representing this appreciation, which it has done by its payment in operating expense to the depreciation reserve, and thus contribute capital to the enterprise and pay a return on its own contribution. This certainly seems not right.

The foregoing examples seem to show the inconsistencies attending the handling of depreciation allowances in connection with legally

determined values based on a reproduction cost and a permanently rising market. What happens with a falling market that is to be experienced in the reasonably near future and is even now in evidence?

It will be assumed first, as before, that depreciation allowances to the reserve are based on original cost. It will be assumed that a property costing \$200,000 is almost immediately valued by a court on the basis of reproduction, at \$100,000, the one small depreciating item that cost \$200 being valued at \$100, and the replacing item is to cost \$100.

When the original item goes out of service, either \$200 or \$100 is to be written off and the cost of the new item, \$100, is to be written on. The sum of \$200 has accrued in the reserve paid in by the public through charges to operating expense. Then the transaction may be as follows: When the court renders its decision the property is written down 50 per cent to \$100,000. When the item considered goes out of service, its cost, \$200, accumulated in the reserve is written off, leaving \$99,800 in the property. The cost of the new item \$100 is then written on, leaving the property statement at \$99,900 physical property and surplus of \$100 transferred from the reserve, making a total of \$100,000. But the surplus may be distributed to the owner, and to essentially the same property that the court valued at \$100,000 there will then attach a value of only \$99,900.

If only the reduced value of the item, \$100, is written off and the cost, \$100, of the new item is written on, the property remains at \$100,000 value, but there is still \$100 in the reserve that may be distributed to the owner.

Now if the reserve had been established on the basis of the cost of the new item, then only \$100 would be in the reserve; \$100 would be written off for the retired item and on for the new item and there would be no disturbance in the accounts, but the owner will have lost half of his original investment.

Perhaps this is not more than he should expect after such a fall in prices as must have occurred to make the reproduction cost half the original cost. His loss occurred when the court made its ruling. But he would have lost nothing if he had put his money in a savings bank, and it seems hardly fair that the investor in a *permanent* public service property should lose a considerable part of his investment made in good faith and *of necessity* in a time of high prices, as is the case just now with all of the necessary extension work going on, any

more than it seems fair that the public should contribute capital to the enterprise when costs advance and then pay return on that capital.

Indeed it seems unfair to both public and owner alike that the value of a property used to give a public service should depend on the market price of the items, material and labor, that have entered into its composition. It is not these items that the company owner is selling, it is service that these items enable him to render that he is selling. As this service costs more or less, the charge for it should be more or less; as the value of the dollar changes, the rate of return on the investment should change.

The Interstate Commerce Commission in dealing with the railroads avoids in part the difficulties discussed above, by causing the public to pay the increased or decreased cost of replacing items by its contribution to operating expense but requiring the public to pay return only on the original investment. Thus if an item is purchased originally for \$1000 and on being worn out is replaced by an identical item costing \$2000, no change is made in the capital account, but operating expense is charged with the whole \$2000. Perhaps this is the best that can be done with such complicated properties, and particularly with such items as ties, which could be segregated as to cost only with great difficulty and then only approximately, but it is not right. The public should not supply part of the cost of the property even though it does not bear the added burden of paying return on what it has furnished. Neither should the public pay a return on original cost when through the result of making replacements on a falling market the actual investment in a given property is much less than its original cost. The public should pay always as nearly as possible, a fair return on the actual reasonable investment, and should make the investment good as the items purchased are consumed in service. The investment is the one thing that can be handled by book-keeping methods without doing injustice to either utility owner or the public he serves.

Beside the depreciation allowance difficulty, the following considerations are thought to be pertinent:

It is not value that determines return nor can it ever be, it is return that determines value and this is not a quibble over words. The Supreme Court of the United States has said that a public utility owner is entitled to a fair return on the fair value of the property that he devotes to the service of the public. This is the law just now.

To the layman it seems like good law, but it is very difficult of interpretation and administration. Interpretation and administration would be much simpler and more satisfactory if the court had never formulated the law in the precise words that it has used, but had laid stress on the other law that it has established, namely: that the utility is entitled to charge for its service only so much as the service may be reasonably worth. The two laws must be in harmony or both cannot be law. If in interpreting and administering the law, fair rates are based on worth of service, and this in turn is based on cost to the community served to serve itself with the same plant as the one that may be under consideration and with reasonable efficiency, there will be little ambiguity, little difference over what to include in cost of reproduction, little difference of opinion about going value, a term that never would have been born, little difference about depreciation. The only thing to give the court much trouble would be the fair rate of profit to be earned, and this is purely a judicial matter. Most of the difficulties of valuation would have vanished, because when a community is serving itself with a physical plant, it is investment, not cost of reproduction that is considered. And investment does not change from day to day, or year to year, with changes in the cost of the items entering into the construction of the service plant.

Just now prices of all consumable commodities are high. Interest rates are high. Economists tell us that the causes are not the same. But the effect is the same, and all service of every kind is just now worth more than formerly because it costs more dollars, and because he who renders service must have more dollars for his living in order to have the same living as formerly, and because the use of the service in industry brings more dollars to the user than formerly.

If I make my living by the rental of houses that I own, I must increase my rental rate because all of my expenses have increased in dollars. My investment remains as it was in 100-cents dollars, but I must earn a higher rate of return on it. In fairness I am not entitled to the higher rate on an arbitrarily increased value assigned to my investment based on 50-cents dollars. I can't increase the value of my investment by the amount of changes in the purchasing power of the dollar and charge a rate of return on that increased value which also reflects the change in the value of the dollar. It makes no difference whether the causes of high prices and high interest are the same or not. My investment is only half what it was in purchasing

power and I must have twice the rate of return on this half to provide my living expenses; to make me the same living that I enjoyed before the war. In fairness I am entitled to no more from the source named.

What must happen is that I must have as many bushels of potatoes, if potatoes are my diet, for my rentals as I had before money became cheap. If potatoes now cost twice as much as they did, I must have either twice the rate of return on my investment or the same rate of return on an arbitrarily increased investment value. But I do not need both twice the investment value and twice the old rate of return on this inflated value. It is useless to say in opposing this statement that one's needs do not govern his legitimate profits in business. It is impossible to treat a public utility property just as if it were a freely competitive unregulated enterprise. And it must not be forgotten that charging unreasonable profits in any business connected with the necessities of life is contrary to public policy.

On a new investment made now, I must have the high rate of return because these dollars that I am now investing will buy only half as many potatoes, half as much house, half as much useful property, as dollars formerly invested and hence I must have twice the rate of return even on these high investment costs in order to be as well fed as I was before the war.

Utilities in these days are pleading for values based on reproduction costs and are also showing the increased rates charged for borrowed money in an attempt to get higher "fair returns" than formerly and on higher values than the real investment. A recent New Jersey Supreme Court decision seems to be a defense of such pleading. But it is believed to be wrong.

In support of the pleading the following argument is made: If I own a water works property and wish to sell it and reinvest my money in another water works property just like the one I own, I must get the present-day cost of the new property out of the old one or I shall lose something. And when I reinvest this cost in the new property I must have the present day rate of return on it. This is not true. I have just the same value investment that I had before. Neither can it be said that I can sell my old works at new cost of reproduction price and invest the proceeds otherwise at high rates. Has it occurred to the persons offering this argument that there are no utility properties being sold at present day reproduction costs? In the face of a soon-to-be-falling market one would be foolish indeed

to pay present reproduction prices for utility properties. Men who make such investments are not foolish to this extent. Only necessary additions are being made to existing properties, and on the cost of these necessary additions the going rate of return should be realized. No permanent investment or investment in a permanent enterprise of long standing is worth on the market today a sum based on or approximating present day cost of reproduction unless its earnings have warranted such worth.

No owner of bonds, mortgages, or stock of utility enterprises, nor any depositor in a savings bank, finds any more dollars in his hand, due to a change in the value of the dollar, when selling his bonds or stock or receiving back his own from a mortgagor or savings bank than he put into those investments before the war except as he may have purchased at a discount. Utility securities do not reflect any such increase in value as the difference between pre-war and post-war prices. Quite the contrary is the more common experience, even in those cases where reasonable advances in rates have been made. In general it is true that bank stocks, insurance company stocks and other like stable securities of regulated enterprises show no advance commensurate with the change in the value of the dollar.

Neither will he who loans today on a mortgage, or buys bonds of a utility, receive less dollars than he now loans, when after some years his mortgage loan is paid and his bonds mature. The value of the dollar will have increased but the lender will receive just so many dollars as he loaned, no less and, barring the effect of discount, no more.

It is true that investments in utility properties are not exactly like loans on mortgages, but neither are they like investments made in unregulated, freely competitive, businesses, free to earn all that their managers can make them earn. Utility properties have both privileges and restrictions not enjoyed or suffered by unregulated, freely competitive properties, and if anything were needed to demonstrate the fact that the cost of reproduction new less depreciation is not the value of the public utility property, or indeed, any regulated property, the fact that the securities of these properties in nowise reflect the change in the value of the dollar ought to be sufficient.

Indeed, the securities of very few incorporated industries, regulated or unregulated, reflect the change in the value of the dollar. The stocks of a few industries that have been able to make large profits during the war period did advance in value, many of them even

much more than the change in the value of the dollar would indicate, but always because of a change in their earnings, never because of a change in the cost of reproducing the physical property that was the instrument with which the management conducted its enterprise. It ought to be clear that the value of a going property is not what it would cost to reproduce that property. Its value is what it can earn at fair charges capitalized at a determined going rate for money, providing its earnings are secure for the future.

It is clear that the court did not mean value when it said value in that old Smythe vs. Ames decision. It is clear from the interpretation given by later decisions that it did not mean the sum necessary to create the property new as of the date of valuation, less existing depreciation, because it has definitely excluded from allowable costs of reproduction the costs of certain items that would of necessity be a part of a new construction at the time of valuation, notably the removal and replacing of pavement over underground constructions in those places where no pavements existed at the time the underground construction was placed. Apparently what it did mean, if the later decisions are to be taken as interpretations, was the present day (present day meaning the date of valuation) cost of doing the things that were done to create the property but by present day methods and with presently existing facilities. Always it is cost not value that is found.

Even the item of "going value" is by some engineers being reduced to a quantity said to represent the cost of producing the business of the property, and this definition has been most often apparently in the minds of the courts when writing opinions, although the first decision that included the item did not suggest the idea of cost at all. Engineers not liking judgment guesses and trying always to reduce all procedure to definite formulas, have suggested various ways of finding "going value," and while the final deliverance of the court is still a judgment guess it is based upon engineer's testimony which is most often based on an estimate of the cost of developing the business. Again, it is cost of the property used in the service of the public that is assumed to be meant by that word "value" in the historic reference case. Present day costs, then, of doing the things that were done to create the property, both the cost of the physical plant used by the management in producing service, and the cost of developing the working organization, and, curiously enough, the cost of developing a properly remunerative business, *not the business enjoyed*

by the property at the time of valuation but the business that it ought to enjoy predetermined by the engineer before the court has acted, as a step precedent to his estimate of going value, are assumed to be equivalent to value. Very curious procedure, this.

With respect to the physical plant at least, the generally accepted method means, so far as differences between 1914 and 1920 are concerned, during which few years there was little change in method or facilities, original cost to date appreciated to allow for the cheapened dollar. And original cost to date is investment.

Now, while because of the scarcity of houses and machinery, as compared with the demand, a good many buildings and some machines are changing hands these days, on a basis of new prices, land has shown no such extreme advance, except land that has produced greater earnings than heretofore. And as has been noted already, utility properties are not changing hands on any basis at all and certainly will not change hands on a basis of new prices; nor will any new utility properties be built by private enterprise so long as the clouds of reproduction cost value and falling prices are darkening the view of the future. What must be spent on existing plants, will be spent if money can be found, but no more.

Does not it seem to be clear, therefore, that present day reproduction costs of old properties are not their values, nor even the proper basis for estimating fair return at present day high rates?

And even in normal times, if such there be, when market prices are rising and falling alternately, is it the custom of any business to vary its book investment, on which it figures return, from year to year up and down with the change in the prices of the building materials and labor used in the construction of the plant which it uses in its activities? Not so, nor should it be so. For practical purposes the investment in a business plant does not vary from year to year with variation in the cost of the items that are included in its construction, however much it may do so in theory. After some years of more or less steady change in value of real estate, that part of the property may be written up or down as the case may be, but the wearing items of machinery are carried at what they cost until they are worn out or disposed of in some other way. But earnings are made to vary so far as possible with the needs of the times.

So would it seem to be proper to do with utility properties. Regulations providing for fair return on the investment, as that is considered in purely private ventures, the rate varying with the needs of

the times, should never be deemed to result in the taking of private property without due process of law nor without just compensation.

If we would just be fair with ourselves, recognize investment rather than cost of reproduction, misnamed value, as the basis for earnings, make it possible for a utility company to earn such a return as will command capital, varying the rate of return with the necessity of the times; deal with the utility fairly, and require fair dealing from it, we would have less troublesome litigation, less occasion or desire on the part of the utility to use sharp practice to secure fair return for its service, better service and greater contentment and comfort for the public and its utility servants.

A short time ago, in a paper not yet published, an effort was made to develop a logical method for finding fair return rate. It was concluded that from once and a third to once and two-thirds the market rate for money used in the particular industry in question is the fair rate of return. This is based on the preliminary conclusion also developed in the discussion, that it is most advantageous from the public standpoint that from two-thirds to three-fourths of the money invested in a utility enterprise shall be borrowed. This proportion of borrowed money reduces the return on account of risk to a minimum. It is reasoned that net earnings of twice the fixed charges must be shown to induce capital to venture as loans on mortgage, that is, to buy bonds. If the reasoning is correct, there should be net returns of twice the market rate on from two-thirds to three-fourths of the investment. This means from once and one-third to once and one-half the market rate on the whole investment.

It is believed that if utilities are allowed such return rates on their investments, full operating costs, and depreciation allowances, based on investment, there will be little further litigation, the utilities will be satisfied, and the public should be satisfied because it will be paying no more than a fair return on the investment used in its service. There will be no more discussions of "going value" nor arguments as to what shall be included in cost of reproduction. Costly work for lawyers and engineering experts will be minimized. Peace will reign whether prices go up or down.